SIP RACT Analysis for Kennecott Power Plant and Tailings Impoundment

The Kennecott Utah Copper (KUC) Utah Power Plant (UPP), Tailings Impoundment and the Laboratory are located in Salt Lake County, Utah, near the Magna.
The Tailings Impoundment receives tailings underflow in slurry form. The slurry is deposited in the tailings pond located at the northwest corner of Salt lake County, Utah. The Tailings Impoundment is currently operating under Approval Order (AO) DAQE-AN105720018-06, issued on April 6, 2006.
The UPP is a coal and natural gas fired power plant located south of the Tailings Impoundment that supplies power for KUC operations. Coal is used to fire the plant in spring, summer, and fall while natural gas is used in the winter months. The UPP is currently operating under Approval Order (AO) DAQE AN105720026-11, issued on December 1, 2011.
The laboratory lies just to the west of the UPP and is used to perform various tests required to verify permitting compliance and also functions to optimize operations through analysis of materials. The Laboratory is currently operating under Approval Order (AO) DAQE-261-95, issued on March 27, 1995.

Starting in June 2010 DAQ held several meetings with KUC to discuss the $PM_{2.5}$ SIP and the required RACT analysis. KUC submitted a RACT analysis to DAQ for review on December 12, 2011. This RACT analysis was reviewed and DAQ submitted comments to KUC. KUC submitted a revised analysis on March 6, 2012. DAQ reviewed this RACT analysis. DAQ required KUC to modify the #4 boiler using low NOx burners to meet the RACT requirements. The RACT set a time limit that Boilers #1, #2 and #3 could not be operated after January 1, 2018. KUC submitted a final RACT analysis on August 9, 2012. DAQ agrees with the final RACT analysis submitted by KUC.

The potential to emit at the UPP, Tailings Impoundment and Laboratory are as follows:

	PM_{10}	$PM_{2.5}$	NO_x	SO_2	VOC	CO
UPP	256	256	4,160	6,522	33	384
Tailings	36.3	36.3	0.26	0.0	0.04	1.25
Lab	0.12	0.12	0.68	0.13	0.12	0.0

The sources reviewed for RACT at the UPP are outlined below:

Unit 1, Unit 2 and Unit 3 Boilers: These three boilers are wet bottom wall-fired boiler capable of burning both coal and natural gas, rated at 431.4 MMBTU/hr (coal), or 453 MMBTU/hr (natural gas), equipped with low NO_x burners and an electrostatic precipitator.
DAQ has required that they shall not be operated after January 1, 2018.

Unit 4 Boiler: This is a tangentially fired boiler capable of burning both coal and natural gas, rated at 838 MMBTU/hr (coal), or 872 MMBTU/hr (natural gas), equipped with an electrostatic precipitator.
DAQ accepted a RACT analysis that the burners be replaced with low NO_x burners and over-fire air with an exception. In addition to the low NO_x burners and over-fire air, KUC will be required to install additional controls that will include Selective Catalytic Reduction to reduce the NO_x an additional 480 tons per year.

Unit 5 Combustion Turbine and Duct Burner: Source Description: A combustion turbine and duct burner in combined-cycle operation with a nominal generating capacity of approximately 275 megawatts (MW), equipped with SCR and catalytic oxidation.
DAQ accepts the replacement of Units 1-3 with Unit 5 that is a turbine equipped with selective catalytic reduction (SCR) for NO_x control and duct burner equipped with Low NO_x burners.

Cooling towers: Four noncontact water cooling towers used to control waste heat from the boilers. All towers are equipped with drift eliminators with drift loss rated at 0.002 percent.
DAQ accepts the current cooling towers with drift eliminators as RACT.

Small Space Heaters: Natural gas-fired space heaters are used for comfort heating and cooling, and water heating throughout the power plant complex. The space heaters use low NO_x burners and regular inspections are done to the units to ensure optimum combustion performance. All space heaters are rated at less than 5 MMBTU/hr.
DAQ accepts the space heaters with proper maintenance as meeting RACT.

The RACT review for the Tailings Impoundment:

Wind Erosion: Tailings are sent to the Tailings Impoundment via a slurry pipeline. At the Tailings Impoundment, tailings are separated by size in a cyclone with the larger particles used to build the embankments and the smaller particles discharged in slurry form on top of the impoundment. Emissions from the tailings facility are mainly from wind erosion of dry tailings on the embankment.
DAQ accepts controlling fugitive dust from wind erosion through the use of an approved Fugitive Dust Control Plan as RACT. The dust control plan requires frequent monitoring of the impoundment for wind erosion potential, applying chemical dust suppressants in the late spring, applying water via water trucks and the dust suppression sprinkler system as needed to maintain adequate moisture content.

The RACT review for the Laboratory:

The emissions from the Laboratory are less than one ton per year and a RACT analysis was not performed.